

**Crystal Data:** Cubic. *Point Group:*  $4/m\bar{3}2/m$ . As polycrystalline grains and masses to 5 mm; rarely cubo-octahedra to 2 mm in dendritic aggregates twinned on {111}.

**Physical Properties:** *Cleavage:* None. *Tenacity:* Brittle. *Fracture:* n.d. Hardness = ~7.5 VHN = 559-605, 571.45 average (25 g load). D(calc.) = 19.226

**Optical Properties:** Opaque. *Color:* Silver white to steel gray, white with a pale yellow tint in reflected light. *Streak:* Gray. *Luster:* Metallic.

*Optical Class:* Isotropic.

R: (400) 46.2, (420) 50.8, (440) 53.2, (460) 54.2, (470) 54.5, (480) 54.8, (500) 55.1, (520) 55.5, (540) 55.8, (546) 56, (560) 56.3, (580) 56.6, (589) 56.8, (600) 57.1, (620) 57.4, (640) 57.6, (650) 57.7, (660) 57.8, (680) 57.7, (700) 57.5

**Cell Data:** *Space Group:*  $Im\bar{3}m$ .  $a = 3.1648(4)$   $Z = 2$

**X-Ray Diffraction Pattern:** Bol'shaya Pol'ya river valley.

2.2422 (100), 1.2929 (48), 1.5835 (25), 0.8457 (24), 1.0010 (23), 1.1191 (16), 0.9139 (6)

<b>Chemistry:</b>	(1)
W	99.27
Mo	0.06
Mn	0.04
<u>Fe</u>	<u>0.01</u>
Total	99.38

(1) Bol'shaya Pol'ya river valley, Prepolar Urals, Russia; average electron microprobe analysis.

**Occurrence:** From gold placers in a river valley and in heavy concentrates from crushed quartz.

**Association:** Yttriaite-(Y), quartz, 'phengite', siderite (Bol'shaya Pol'ya river valley).

**Distribution:** In the Bol'shaya Pol'ya river valley, Prepolar Urals [TL], and in vein #91, Dodo mine, Mt. Neroyka rock-crystal field, Ust-Puiva, Tyumenskaya Oblast', Russia [TL]. Also confirmed from other localities in Russia; in petroliferous conglomerates of the Volyn, in Ukraine; as inclusions in diamonds in the kimberlites of Shandong Province, China; in the Luobusha ophiolite, Tibet; in gold-bearing placers in South Africa; in the Krymka meteorite and the Luna 16, 20, 24 and Apollo 16 sites on the Moon.

**Name:** From *tung sten* for 'heavy stone' in Swedish.

**Type Material:** Natural History Museum of Los Angeles County, Los Angeles, California, USA, (63271 - Mt Neroyka and 63272 - Bol'shaya Pol'ya river valley); Mineralogy Department, Natural History Museum, London, England (BM 2010,122 - Dodo mine, Mt Neroyka).

**References:** (1) Mills, S.J., P.M. Kartashov, A.R. Kampf, M.S. Rumsey, C. Ma, C.J. Stanley, J. Spratt, G.R. Rossman, and M.I. Novgorodova (2021) Native tungsten from the Bol'shaya Pol'ya river valley and Mt Neroyka, Russia. *Mineral. Mag.*, 85, 76-81. (2) Glavatskikh, S.F. and N.V. Trubkin (2000) First find of native tungsten and silver in exhalation products of the Great Tolbachik Fissure Eruption (Kamchatka). *Doklady Akad. Nauk*, 373, 523-526 (in Russian). (3) (2001) *Amer. Mineral.*, 86, 942 (abs. ref. 2).